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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



# Washington Water Supply Outlook

MARCH 1, 1988



# Foreword

## How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are terms reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

## For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado	2490 West 26th Ave., Denver, CO 80211
New Mexico	517 Gold Ave. S.W., Room 3301, Albuquerque, NM 87102-3157
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	1201 Terminal Way, Room 219, Reno, NV 89502
Oregon	1220 Southwest 3rd Ave., Room 1640, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201-1080
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82601

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Environment Technical Services Division, 9820 106th St., Edmonton, Alberta T5K 2J6.

# **Washington Water Supply Outlook**

**and**

**Federal — State — Private  
Cooperative Snow Surveys**

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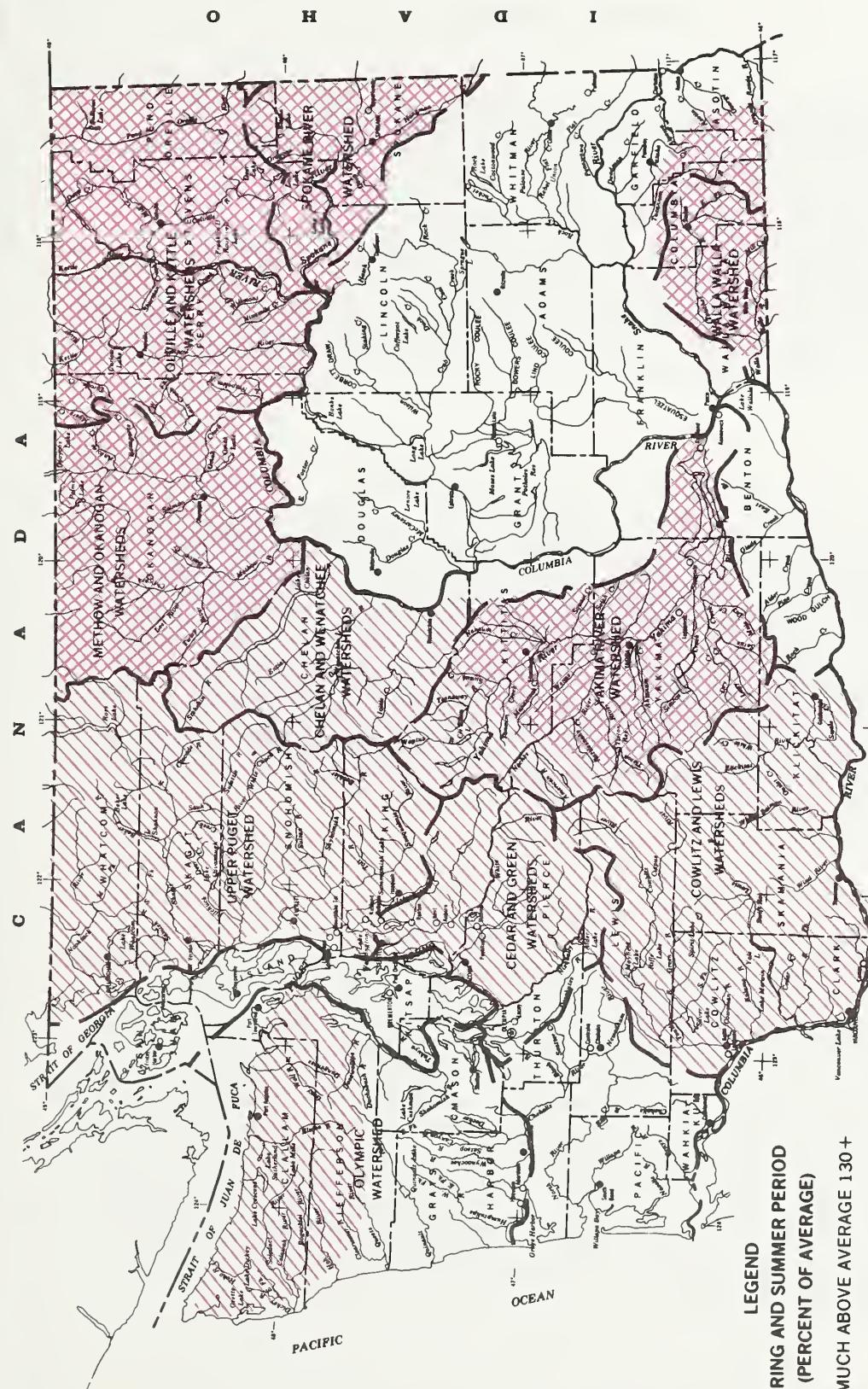
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## MARCH 1, 1988 STREAMFLOW PROSPECTS WASHINGTON

0      25      50      75      100 MI  
 0      50      100      150 KM

SOURCE: Data compiled by SCS  
Field Personnel

JANUARY 1986 4-R-39641  
BASE 4-R-39260

## GENERAL OUTLOOK

### SUMMARY:

February precipitation is much below normal statewide. The snowpack, except in the Olympic basins is below to much below normal. Reservoir storage remains below normal at the major irrigation projects throughout the state, with the reservoirs in the Yakima 31 %, much below normal. February streamflow remained low with temperatures 2 to 5 degrees above average for the month. Runoff for 1988 is forecasted to be below to much below normal in Washington. NOTE: There are some helpful hints on conserving water on Irrigated lands on page 25.

### SNOWPACK:

Snow pack in most areas of Washington is below normal and varies as follows: the Spokane Basin 66%, Colville - Pend Oreille River 70%, the Wenatchee 84%, Chelan Basin 90%, and the Yakima Basin 72%, down from 81% last month. On the western slopes of the Cascades the Lewis and Cowlitz basins are at 69%, the Skagit 75%, and Green 66% of normal. The Olympic area has 95% for the best average around the state. Maximum snow pack is at Morse Lake SNOTEL site in the Yakima Basin, with 46.1 inches of water content.

### PRECIPITATION:

February was warmer than normal with below average precipitation over most of Washington. Precipitation values from National Weather Service data for Washington showed the Pend Oreille Basin with 33% of normal and the Spokane with 47%. Other values include the Yakima at 66% and the White-Green Basin with 75%. March 1 precipitation values from SNOTEL sites indicate a water year value near 68% of average for the high mountain areas of Washington. Water year to date precipitation is below average over most of the state. Values vary from 67% of normal in the Cowlitz-Lewis Basin to 79% in the Okanogan basin.

**RESERVOIRS:**

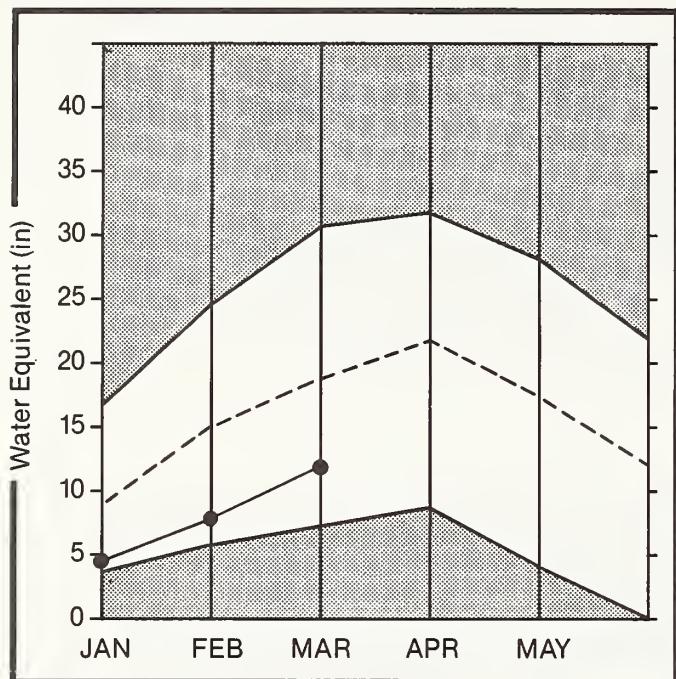
Reservoir storage continues below average in the Yakima Basin with 216,200 acre feet, 31% of average. Storage at other major reservoir remains varied in Washington. Roosevelt Lake is 116% of normal. The Okanogan reservoirs are 92% of March 1 average. Storage at other power reservoirs are: Coeur d' Alene Lake 102,200, 46% of capacity, Chelan Lake 91,300 acre feet down from 191,700 acre feet last month and 13% of capacity, and Ross Lake 612,000 acre feet, and 51% of capacity.

**STREAMFLOW:**

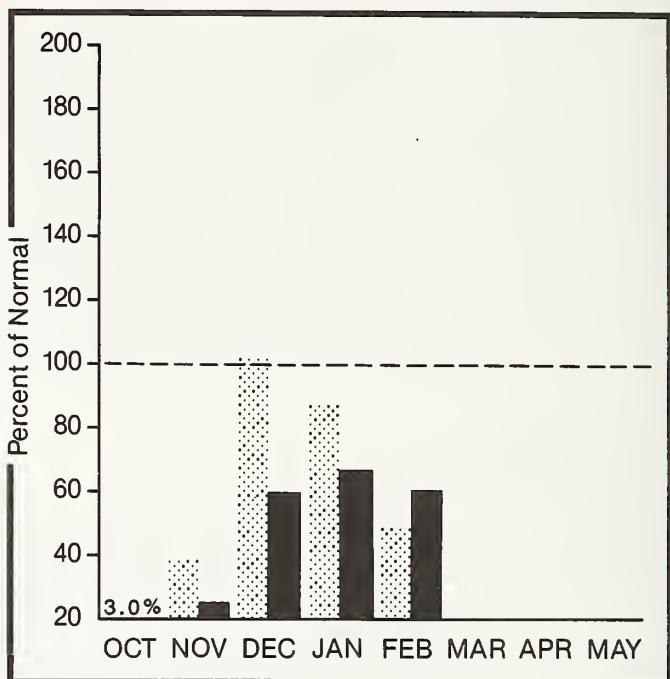
March 1 streamflow forecasts vary from 59% in the Walla Walla River to 80% for the Entiat River. February streamflows continued below normal in Washington. Streamflow varied from 32% on the Spokane River to a maximum of 76% for the Skykomish River. On the west side of the Cascade Mountains, runoff from the Chehalis was 49% and 76% on the Skagit River. The eastern slope of the Cascades runoff on the Yakima was 59% and the Okanogan at 45% of average. In Eastern Washington streamflow was 33% of normal on the Pend Oreille and 55% on the Kettle River.

# SPOKANE

**Mountain snowpack\* (inches)**



**Precipitation\* (percent of normal)**



\*Based on selected stations

\*Based on selected stations

Maximum      [Shaded Box]      Average      [Dashed Line]  
Minimum      [Shaded Box]      Current      [Solid Line with Dots]

Monthly precipitation      [Hatched Box]      Year to date precipitation      [Solid Black Box]

## SPOKANE RIVER BASIN

### WATER SUPPLY OUTLOOK:

Forecast of runoff for the Spokane River Basin is 60% of normal. This forecast is based upon a snow pack that is 66% of average and a water year to date precipitation value 66% of normal. Precipitation for February was 47% of normal. Maximum snow water occurred at the Lost Lake snow course, elevation 6110 feet with 30.1 inches of water content. Storage in Coeur d' Alene Lake was 102,200 acre feet compared to 123,200 last year; average storage in Cd'A for March 1 is 220,900 acre feet. Storage was drafted for power generation during January. February streamflow on the Spokane River was 32% of average at Spokane.

For more information contact your local Soil Conservation Service office.

**SPOKANE RIVER BASIN**

**STREAMFLOW FORECASTS**

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SPOKANE at Post Falls	APR-SEP	2820.0	1700.0	60	2680.0	95	710.0	25
	APR-JUL	2723.0	1660.0	61	2670.0	98	650.0	24

SPOKANE at Long Lake      APR-JUL      3045.0      1860.0      61      3210.0      105      900.0      30

RESERVOIR STORAGE      (1000AF)      |      WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
	THIS YEAR	LAST YEAR	AVG.				
COEUR D'ALENE	222.8	192.2	123.2	220.9	Spokane River	19	93      64

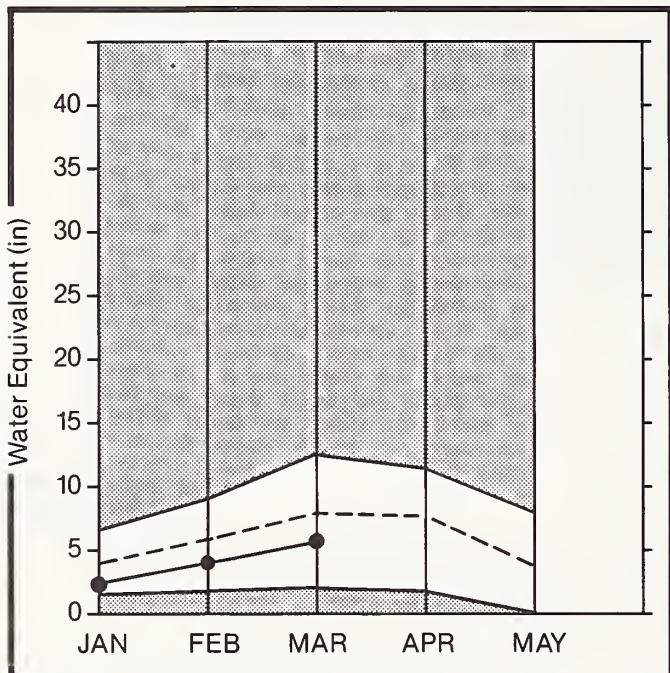
1 - Reas. max, and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

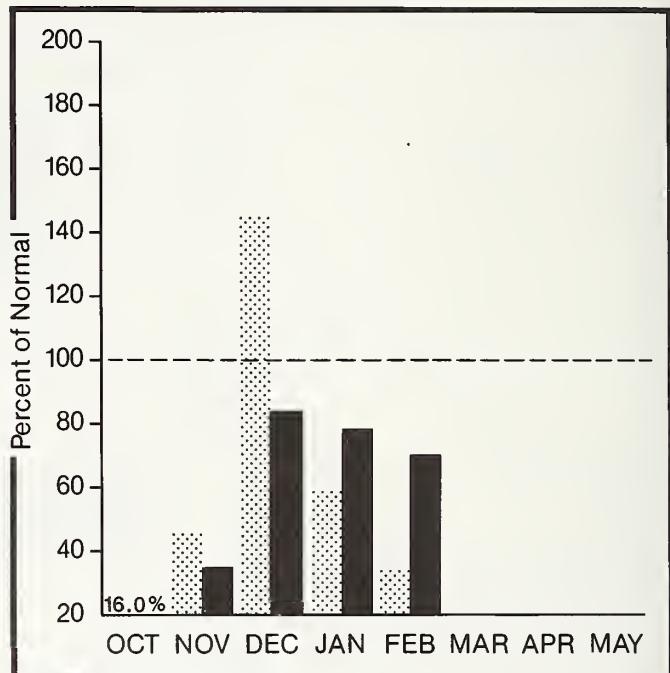
The average is computed for the 1961-85 base period.

# COLVILLE AND PEND OREILLE

Mountain snowpack\* (inches)



Precipitation\* (percent of normal)



\*Based on selected stations

\*Based on selected stations

Maximum          Average    

Minimum          Current    

Monthly precipitation          Year to date precipitation    

## COLVILLE - PEND OREILLE RIVER BASINS

### WATER SUPPLY OUTLOOK:

Streamflows for February were 33% of average on the Pend Oreille River, 55% on the Kettle River and 57% on the Columbia River at the International Border. Forecasts for the Pend Oreille River are for flows to be 67% of normal for the summer. Other forecasts are 74%, for the Kettle River and 69% on the Colville River for the summer runoff period. Precipitation during February was 33% of average, bringing the water year to date to 69% of normal. Snow cover basin-wide is 70% of average. Maximum snow pack measurement for the basin was at Hoodoo Basin with 33.0 inches of water.

For more information contact your local Soil Conservation Service office.

**COLVILLE - PEND OREILLE RIVER BASINS**

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG.	MOST PROBABLE (1000AF)	MOST PROBABLE (%) AVG.	REAS. MAX. (1000AF)	REAS. MAX. (%) AVG.	REAS. MIN. (1000AF)	REAS. MIN. (%) AVG.
PEND OREILLE RIVER b1 Box Canyon 2	APR-SEP	15170.0	10200.0	67	13500.0	89	7000.0	46
	APR-JUL	13900.0	9350.0	67	11990.0	86	6700.0	48
	APR-JUN	11960.0	8015.0	67	10290.0	86	5740.0	48
CHAMOKANE CREEK	MAY-AUG	9.2	5.7	62	10.0	109	2.0	22
COLVILLE RIVER at Kettle Falls	APR-SEP	139.0	90.0	65	160.0	115	20.0	14
	APR-JUL	128.0	86.0	67	150.0	117	20.0	16
	APR-JUN	118.0	81.0	69	140.0	119	20.0	17
KETTLE RIVER nr Laurier	APR-SEP	1907.0	1355.0	71	1950.0	102	760.0	40
	APR-JUL	1807.0	1319.0	73	1897.0	105	741.0	41
	APR-JUN	1622.0	1200.0	74	1720.0	106	680.0	42
COLUMBIA RIVER at Birchbank 2	APR-SEP	44390.0	34900.0	79	41100.0	93	28600.0	64
	APR-JUL	35440.0	27900.0	79	32860.0	93	22940.0	65
	APR-JUN	25650.0	20520.0	80	24100.0	94	16930.0	66
COLUMBIA RIVER at Grand Coulee 2	APR-SEP	66460.0	49100.0	74	59100.0	89	38800.0	58
	APR-JUL	55730.0	41300.0	74	49660.0	89	32940.0	59
	APR-JUN	43420.0	32370.0	75	39090.0	90	26055.0	60

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVG.			
ROOSEVELT	5232.0	3080.7	4550.9	2763.0	Colville River	3	85 71
BANKS	715.0	661.5	658.7	606.0	Pend Oreille River	11	94 70
					Kettle River	8	101 71

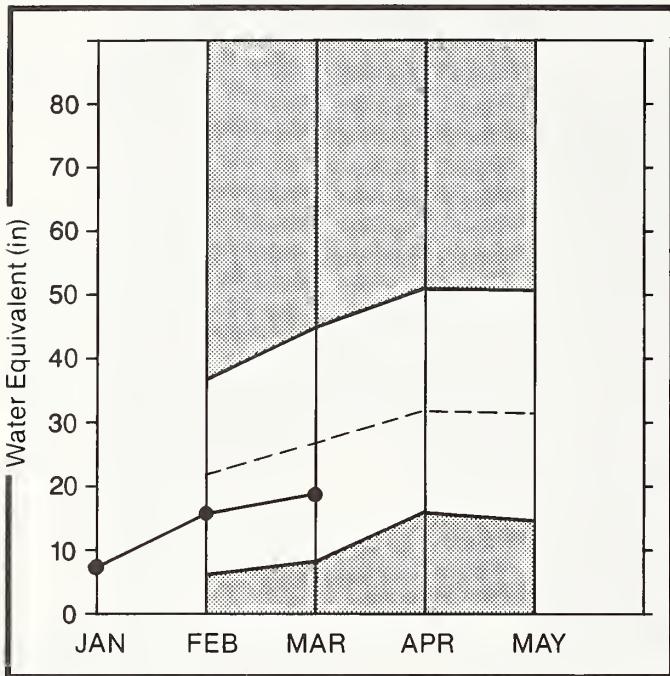
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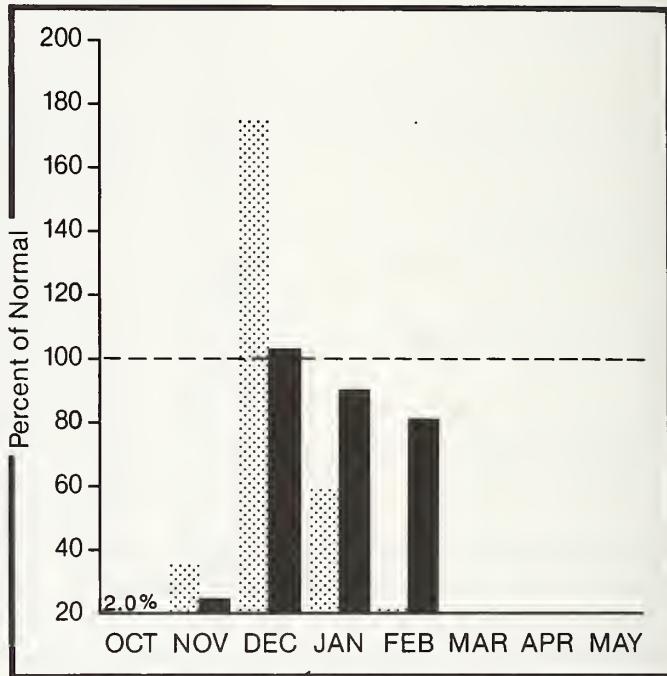
The average is computed for the 1961-85 base period.

# OKANOGAN AND METHOW

**Mountain snowpack\*** (inches)



**Precipitation\*** (percent of normal)



\*Based on selected stations

\*Based on selected stations

Maximum           Average     

Minimum           Current     

Monthly precipitation           Year to date precipitation     

## OKANOGAN - METHOW RIVER BASINS

### WATER SUPPLY OUTLOOK:

Snow cover as of March 1 is 73% of average on the Okanogan and 62% in the Methow Basin. Maximum snow water occurred at Harts Pass SNOTEL, elevation 6500 feet, with 30.1 inches of water. February precipitation in the Okanogan was at 21% with water year to date 79% of average down from 89% last month. Summer runoff forecasted for the Okanogan River is 56% of normal. The Similkameen River 56% and the Methow River is 61% of normal. Okanogan River streamflow was at 45% of average for February while on the Similkameen River it was 35%. Storage in the Conconully Reservoirs is at 12,900 acre feet which is 56% of capacity and 92% of March 1 normal.

For more information contact your local Soil Conservation Service office.

**OKANOGAN - METHOW RIVER BASINS**

**STREAMFLOW FORECASTS**

FORECAST POINT	FORECAST PERIOD	25 YR. AVG.	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SIMILKAMEEN R. nr Nighthawk	APR-SEP	1432.0	805.0	56	1225.0	86	425.0	30
	APR-JUL	1333.0	795.0	60	1155.0	87	435.0	33
	APR-JUN	1128.0	710.0	63	1010.0	90	410.0	36
OKANOGAN R. nr Tonasket	APR-SEP	1661.0	935.0	56	1575.0	95	325.0	20
	APR-JUL	1501.0	885.0	59	1440.0	96	330.0	22
	APR-JUN	1255.0	755.0	60	1220.0	97	290.0	23
METHOW RIVER nr Pateros	APR-SEP	980.0	600.0	61	930.0	95	275.0	28
	APR-JUL	907.0	555.0	61	855.0	94	255.0	28
	APR-JUN	769.0	485.0	63	740.0	96	230.0	30

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **	WATERSHED	NO. COURSES	THIS YEAR AS % OF			
	THIS YEAR	LAST YEAR	AVG.	AVG'D	LAST YR. AVERAGE			
CONCONULLY LAKE (SALMON)	10.5	7.4	8.0	8.0	Okanogan River	28	94	73
CONCONULLY RESERVOIR	13.0	5.5	6.2	6.0	Methow River	4	91	69

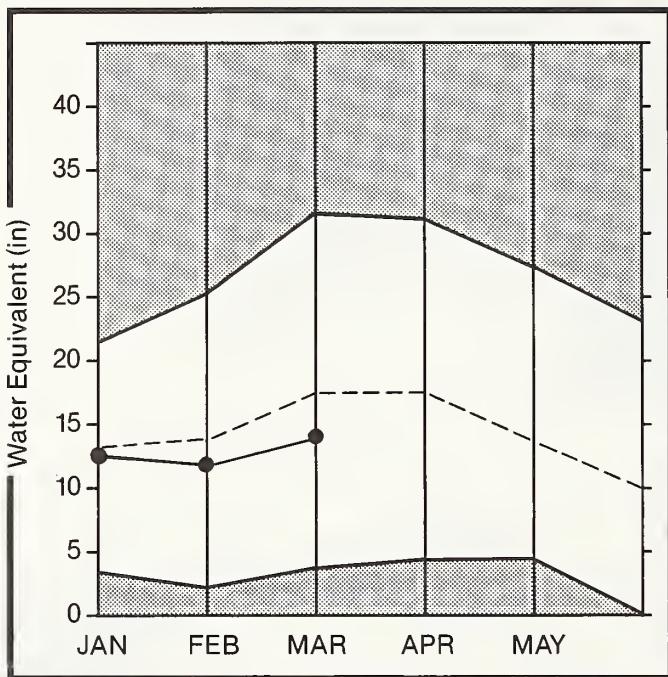
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The average is computed for the 1961-85 base period.

# WENATCHEE AND CHELAN

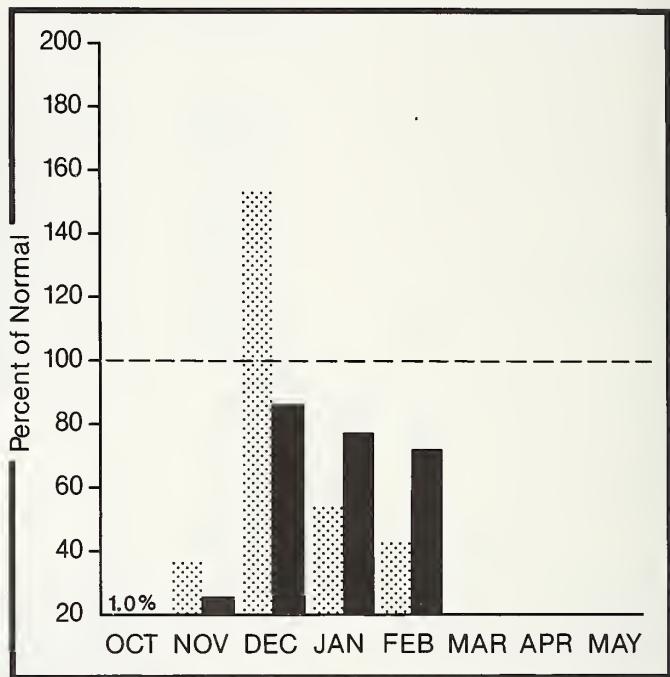
**Mountain snowpack\* (inches)**



\*Based on selected stations

Maximum      [Shaded Box]      Average      [Dashed Line]  
 Minimum      [Solid Box]      Current      [Line with dots]

**Precipitation\* (percent of normal)**



\*Based on selected stations

Monthly precipitation      [Dotted Box]      Year to date precipitation      [Solid Box]

## WENATCHEE - CHELAN RIVER BASINS

### WATER SUPPLY OUTLOOK:

Runoff for the Wenatchee River is forecast to be 78% of normal for the summer. Forecasts in the Chelan and Stehekin River runoff are for 76% of average. February streamflow within the basin was 39% of normal on the Wenatchee and 37% on the Chelan River. Snow pack in the Wenatchee is 79% of normal and in the Chelan Basin is 88% of normal. Lyman Lake SNOTEL had the most snow water with 46.1 inches on March 1. Precipitation during February was 42% of normal in the basin bringing the water year to date to 71%. Reservoir storage in Lake Chelan is at 91,300 acre feet or 54% of March 1 average and 14% of capacity.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
CHELAN RIVER at Chelan 1	APR-SEP	1184.0	900.0	76	1130.0	95	670.0	57
	APR-JUL	1040.0	795.0	76	990.0	95	600.0	58
	APR-JUN	815.0	635.0	78	790.0	97	480.0	59
STEHEKIN R. at Stehekin	APR-SEP	844.0	640.0	76	750.0	89	530.0	63
	APR-JUL	714.0	540.0	76	635.0	89	445.0	62
	APR-JUN	541.0	410.0	76	480.0	89	340.0	63
ENTIAT RIVER nr Ardenvoir	APR-SEP	233.0	195.0	84	240.0	103	150.0	64
	APR-JUL	221.0	185.0	84	230.0	104	140.0	63
	APR-JUN	171.0	147.0	86	180.0	105	115.0	67
WENATCHEE RIVER at Plain	APR-SEP	1270.0	990.0	78	1330.0	105	510.0	40
	APR-JUL	1113.0	900.0	81	1255.0	113	540.0	49
	APR-JUN	899.0	745.0	83	1035.0	115	455.0	51
STEMILT nr Wenatchee (miners in)	MAY-SEP	138.0	98.0	71	140.0	101	55.0	40
ICICLE CREEK nr Leavenworth	APR-SEP	370.0	292.0	79	410.0	111	175.0	47
	APR-JUL	340.0	280.0	82	390.0	115	170.0	50
	APR-JUN	270.0	225.0	83	310.0	115	140.0	52
COLUMBIA R. b1 Rock Island Dam 2	APR-SEP	72250.0	53200.0	74	64750.0	90	41500.0	57
	APR-JUL	61050.0	45100.0	74	54868.0	90	35332.0	58
	APR-JUN	47730.0	35320.0	74	42957.0	90	27683.0	58

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			Avg'0	Last Yr.
CHELAN LAKE	676.1	91.3	165.9	168.1	Chelan Lake Basin	6	98	90
					Entiat River	2	96	95
					Wenatchee River	7	93	84
					Colockum Creek	1	107	72
					Squilchuck Creek	1	88	73
					Stemilt Creek	2	84	67

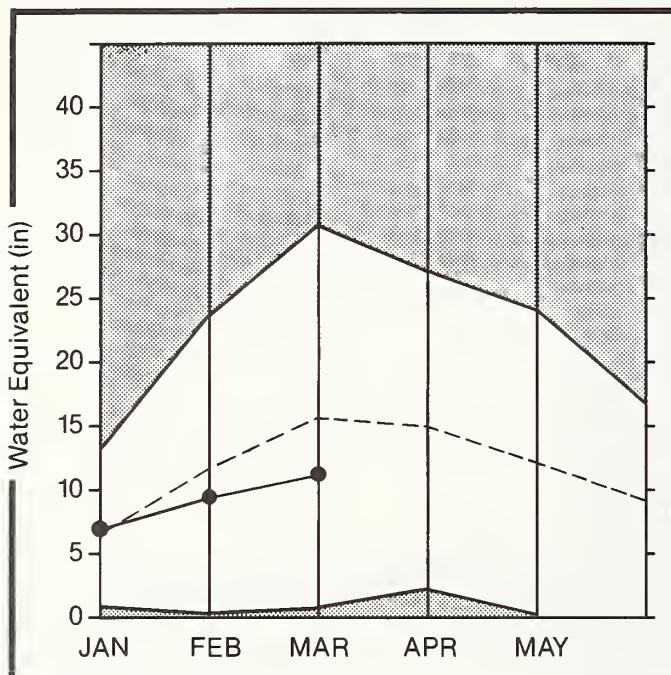
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# YAKIMA

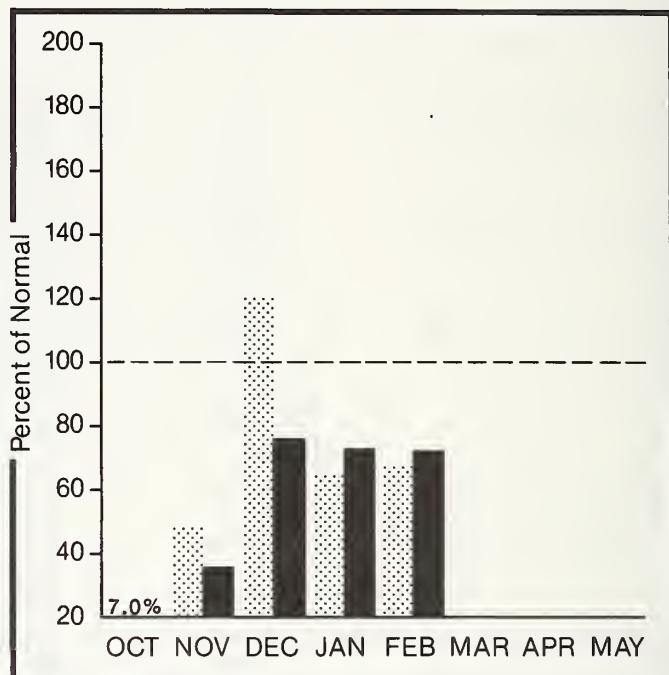
**Mountain snowpack\*** (inches)



\*Based on selected stations

Maximum      [Shaded Box]      Average      [Dashed Line]  
Minimum      [Shaded Box]      Current      [Solid Circle — Solid Line]

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation      [Shaded Box]      Year to date precipitation      [Solid Box]

## YAKIMA RIVER BASIN

### WATER SUPPLY OUTLOOK:

March 1 reservoir storage for the five major reservoirs was at 216,200 acre feet or 31% of normal. Reservoir storage remains the lowest since 1933. Snow pack is 73% of average in the Yakima Basin based upon 22 snow course and SNOTEL readings. February precipitation was 66% of normal and 71% for the water year to date. February streamflow for the Yakima Basin was 59% of normal. Forecasts for the Yakima Basin runoff vary throughout the basin as follows: the Yakima River at Cle Elum 69%, Naches River 69%, the Yakima River at Parker 62% and Ahtanum Creek 70%.

For more information contact your local Soil Conservation Service office.

YAKIMA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
YAKIMA RIVER at Martin 1	APR-SEP	136.0	100.0	74	116.0	85	84.0	62
	APR-JUL	126.0	93.0	74	110.0	87	80.0	63
	APR-JUN	112.0	85.0	76	100.0	89	70.0	63
YAKIMA RIVER at Cle Elum 2	APR-SEP	951.0	660.0	69	760.0	80	550.0	58
	APR-JUL	846.0	590.0	70	690.0	82	490.0	58
	APR-JUN	735.0	535.0	73	620.0	84	450.0	61
YAKIMA RIVER nr Parker 2	APR-SEP	2075.0	1290.0	62	1740.0	84	865.0	42
	APR-JUL	1862.0	1160.0	62	1550.0	83	770.0	41
	APR-JUN	1643.0	1050.0	64	1400.0	85	700.0	43
KACHESS RIVER nr Easton 1	APR-SEP	133.0	85.0	64	102.0	77	70.0	53
	APR-JUL	114.0	73.0	64	90.0	79	55.0	48
	APR-JUN	102.0	65.0	64	80.0	78	50.0	49
CLE ELUM RIVER nr Roslyn 1	APR-SEP	459.0	325.0	71	380.0	83	265.0	58
	APR-JUL	417.0	295.0	71	345.0	83	245.0	59
	APR-JUN	353.0	255.0	72	300.0	85	210.0	59
BUMPING RIVER nr Nile 1	APR-SEP	139.0	110.0	79	140.0	101	80.0	58
	APR-JUL	128.0	101.0	79	130.0	102	70.0	55
	APR-JUN	106.0	86.0	81	110.0	104	65.0	61
AMERICAN RIVER nr Nile	APR-SEP	121.0	90.0	74	115.0	95	65.0	54
	APR-JUL	112.0	85.0	76	110.0	98	60.0	54
	APR-JUN	94.0	72.0	77	90.0	96	50.0	53
TIETON RIVER at Tieton 1	APR-SEP	244.0	163.0	68	220.0	90	115.0	47
	APR-JUL	208.0	140.0	67	190.0	91	90.0	43
	APR-JUN	168.0	118.0	70	160.0	95	75.0	45
NACHES RIVER nr Naches 2	APR-SEP	860.0	590.0	69	790.0	92	400.0	47
	APR-JUL	779.0	535.0	69	715.0	92	355.0	46
	APR-JUN	667.0	475.0	71	630.0	94	320.0	48
AHTANUM CREEK nr Tampico 2	APR-SEP	47.0	35.0	74	52.0	111	15.0	32
	APR-JUL	43.0	30.0	70	45.0	105	15.0	35
	APR-JUN	37.0	27.0	73	40.0	108	15.0	41

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY I	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE'D	THIS YEAR AS % OF LAST YR. AVERAGE
	I	THIS YEAR	LAST YEAR	AVG.			
KEECHELUS	157.8	43.1	69.0	105.0	Yakima River	17	88 72
KACHESS	239.0	77.5	71.0	179.0	Ahtanum Creek	2	97 93
CLE ELUM	436.9	52.4	114.2	273.0			
BUMPING LAKE	33.7	10.4	13.9	10.0			
RIMROCK	198.0	60.8	120.1	130.0			

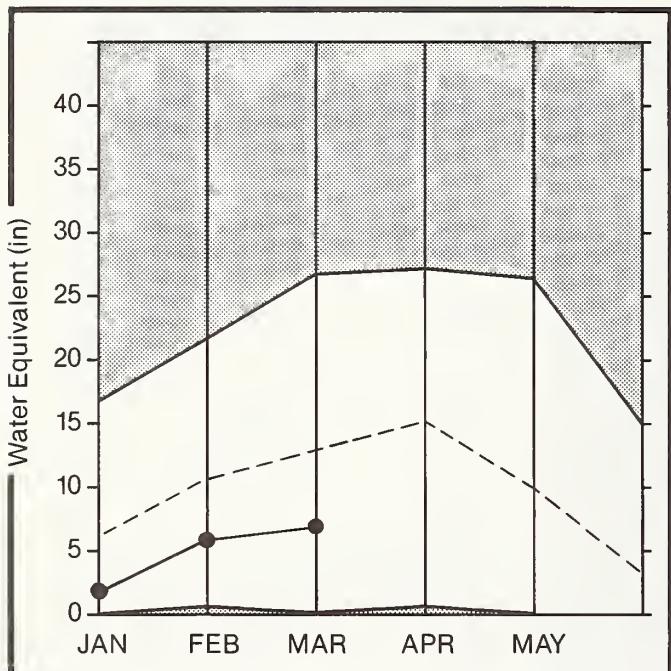
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

# WALLA WALLA

**Mountain snowpack\*** (inches)



\*Based on selected stations

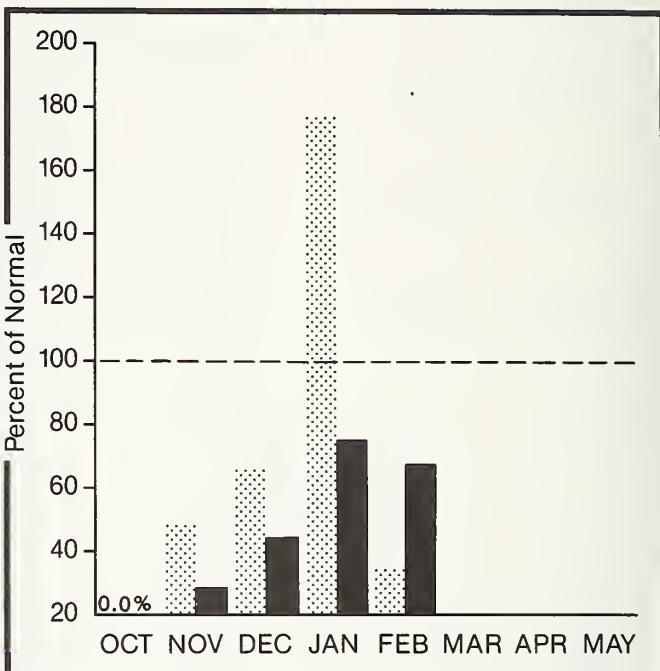
Maximum

Average

Minimum

Current

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation

Year to date precipitation

## WALLA WALLA RIVER BASIN

### WATER SUPPLY OUTLOOK:

Streamflow forecasts are for 59% of average in the Walla Walla Basin for the coming summer. Streamflow for the Snake River was at 47% of normal for February and 50% on the Walla Walla River. February precipitation was 34% of average. The water year to date precipitation has been 68% of normal, down from 72% last month. March 1 snow pack in the Walla Walla River Basin is 55% of normal. Water content at the Touchet SNOTEL site was 23.5 inches on March 1.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG.	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
MILL CREEK at Walla Walla	APR-SEP	17.5	10.4	59	15.0	86	5.0	29
	APR-JUL	17.3	10.4	60	15.0	87	5.0	29
	APR-JUN	17.2	10.7	62	15.0	87	5.0	29
SF WALLA WALLA nr MiltonFreewater	APR-JUL	55.0	32.5	59	44.0	80	22.0	40
COUSE CK nr Milton Freewater	APR-JUL	3.6	1.9	53	3.0	83	1.0	28
PINE CREEK nr Weston	APR-JUL	2.7	1.3	52	2.0	74	1.0	37
COLUMBIA R. at The Dalles 2	APR-SEP	101800.0	70000.0	69	88000.0	86	51600.0	51
	APR-JUL	87110.0	60000.0	69	75250.0	86	44300.0	51
	APR-JUN	70470.0	48600.0	69	60900.0	86	35900.0	51

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF LAST YR. AVERAGE
		THIS YEAR	LAST YEAR	AVG.			
					Mill Creek	1	75 55

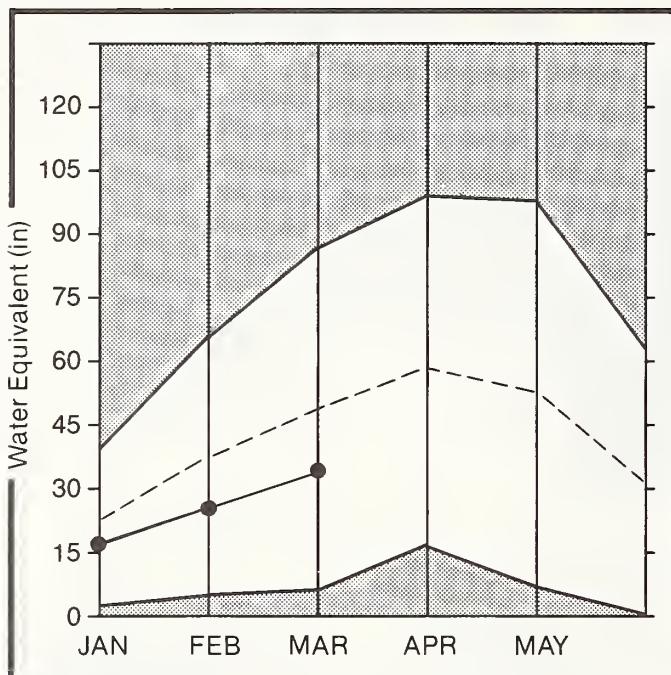
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

# COWLITZ AND LEWIS

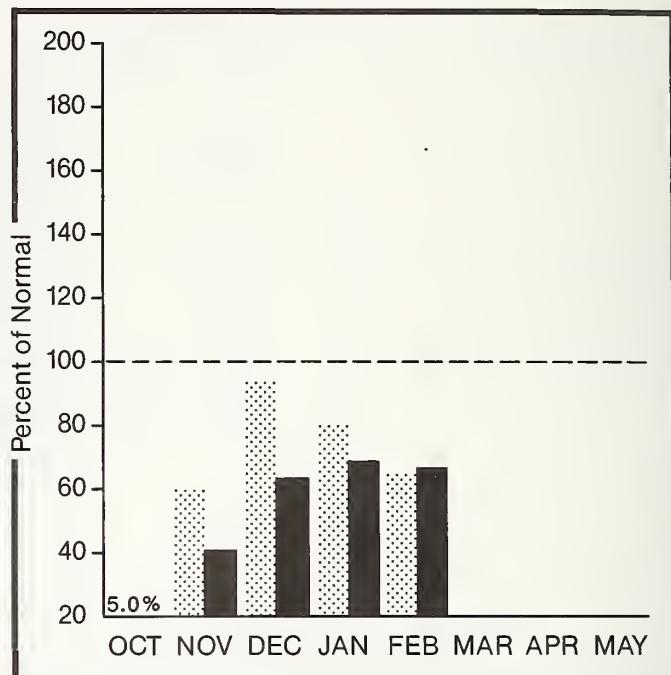
**Mountain snowpack\*** (inches)



\*Based on selected stations

Maximum      [Shaded Box]      Average      [Dashed Line]  
Minimum      [Solid Box]      Current      [Solid Line with Dots]

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation      [Hatched Box]      Year to date precipitation      [Solid Box]

## COWLITZ - LEWIS RIVER BASINS

### WATER SUPPLY OUTLOOK:

February precipitation was 63% of normal bringing the water year to date precipitation to 67% of average. Cougar 5E received 7.6 inches of precipitation during February. Summer runoff forecasts for the Lewis River are 76% and for the Cowlitz River 75%. March 1 snow cover for the Cowlitz-Lewis Basin is at 78% of normal, up from 72% last month. The Paradise Park site had the maximum water content for the basin with a snow pack containing 44.9 inches of water and 103 inches of snow on March 1.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AUG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
LEWIS RIVER at Ariel 2	APR-SEP	1244.0	950.0	76	1370.0	110	500.0	40
	APR-JUL	1084.0	825.0	76	1150.0	106	500.0	46
	APR-JUN	958.0	750.0	78	1040.0	109	460.0	48
COWLITZ R. b1 Mayfield Dam 2	APR-SEP	2036.0	1530.0	75	2245.0	110	820.0	40
	APR-JUL	1782.0	1340.0	75	1965.0	110	715.0	40
	APR-JUN	1524.0	1170.0	77	1710.0	112	640.0	42
COWLITZ R. at Castle Rock 2	APR-SEP	2687.0	2150.0	80	3100.0	115	1200.0	45
	APR-JUL	2343.0	1870.0	80	2690.0	115	1050.0	45
	APR-JUN	2015.0	1650.0	82	2360.0	117	940.0	47

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR	AVG.				LAST YR.	AVERAGE
				Cowlitz River		2	82	67
				Lewis River		2	84	88

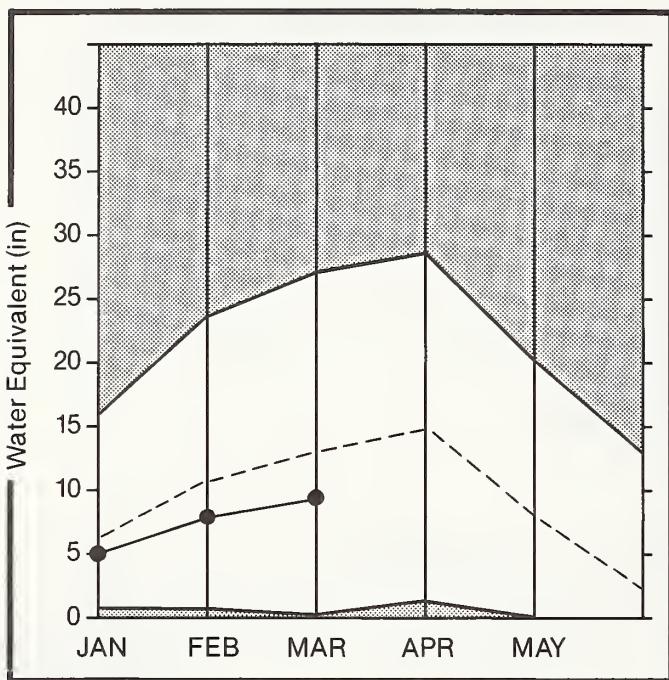
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2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

## WHITE - GREEN

**Mountain snowpack\*** (inches)



\*Based on selected stations

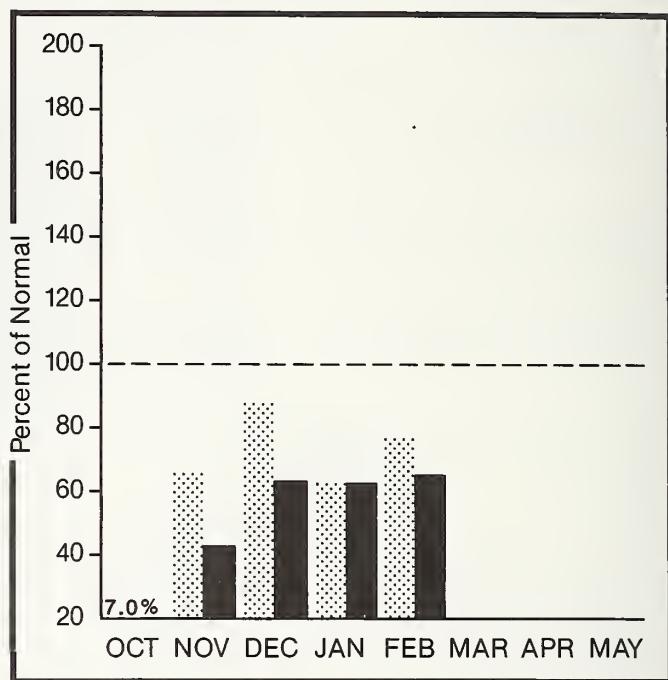
Maximum      [Shaded Box]

Average      [Dashed Line]

Minimum      [Shaded Box]

Current      [Solid Line with Dots]

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation      [Shaded Box]

Year to date precipitation      [Solid Box]

## WHITE - GREEN RIVER BASINS

### WATER SUPPLY OUTLOOK:

NOTE\*\* Low flow conditions, with potential rationing are expected this summer for the west slope of the Cascade Mountains. Summer runoff is forecasted to be 70% of normal on the Green and Cedar River's. Snow pack is 70% of normal for the basin. Snow water content at the CAYUSE PASS snow course was 44.2 inches on March 1. February precipitation was 75% of normal, bringing the water year to date to 64% of average. Stampede Pass received 8.84 inches of precipitation during February.

For more information contact your local Soil Conservation Service office.

## WHITE - GREEN RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST	25 YR.	MOST	MOST	REAS.	REAS.	REAS.	REAS.
	PERIOD	AVG. (1000AF)	PROBABLE (1000AF)	% AVG.)	MAX. (1000AF)	MAX. (% AVG.)	MIN. (1000AF)	MIN. (% AVG.)
GREEN RIVER b1 Howard Hanson Dam 2	APR-SEP	291.0	200.0	69	275.0	95	125.0	43
	APR-JUL	261.0	185.0	71	250.0	96	120.0	46
	APR-JUN	236.0	170.0	72	230.0	97	110.0	47
CEDAR RIVER nr Cedar Falls	APR-SEP	93.0	67.0	72	90.0	97	45.0	48

**RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS**

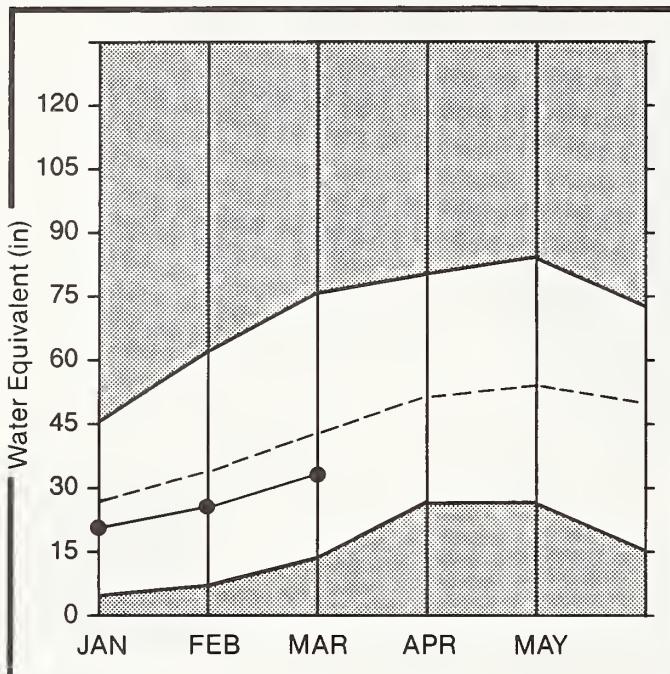
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# NORTH PUGET SOUND

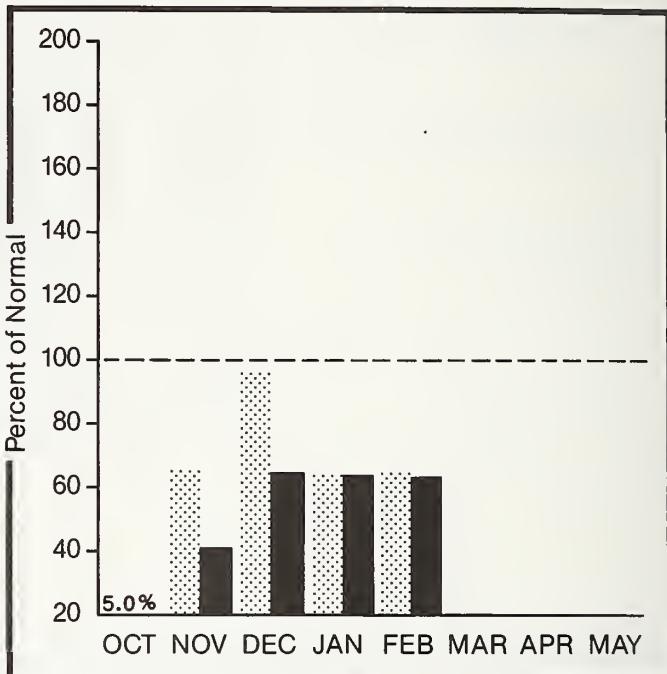
**Mountain snowpack\*** (inches)



\*Based on selected stations

Maximum      [Shaded Box]      Average      [Dashed Line]  
Minimum      [Solid Box]      Current      [Solid Line with Circle]

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation      [Shaded Box]      Year to date precipitation      [Solid Box]

## NORTH PUGET SOUND RIVER BASINS

### WATER SUPPLY OUTLOOK:

Snow cover in the North Puget Basin is 76% of normal for March 1 with Brown Top snow course at 6000 feet in elevation having 39.6 inches of water content. Streamflow on the Skagit River during February was 64% of average. Runoff for the Skagit River is forecasted to be 72% of normal. Reservoir storage at Ross Lake is 612,000 acre feet as of March 1; 199% of average and 51% of capacity. Precipitation values for February were 66% of average with a water year to date at 64% of normal. Diablo Dam reported 6.27 inches of precipitation for February.

For more information contact your local Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SKAGIT RIVER at Newhalem 2	APR-SEP	2264.0	1630.0	72	2110.0	93	1150.0	51
	APR-JUL	1891.0	1360.0	72	1760.0	93	960.0	51
	APR-JUN	1442.0	1065.0	74	1370.0	95	760.0	53

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			AVG'D	LAST YR.
ROSS	1404.1	612.6	706.9	307.6	Skagit River	14	90	75
DIABLO RESERVOIR	90.6	84.8	82.9	---	Baker River	0	0	0
GORGE RESERVOIR	9.8	7.9	8.1	---	Snoqualmie River	1	101	69
					Skykomish River	2	94	92

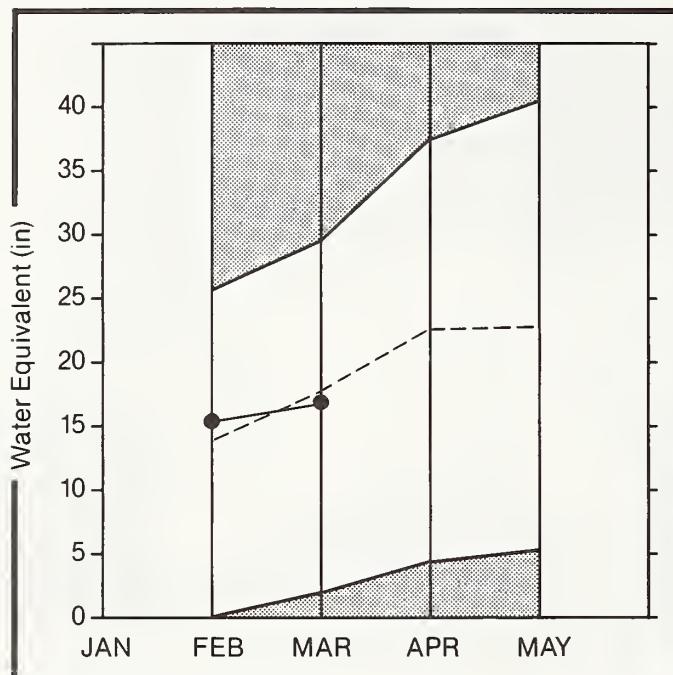
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The average is computed for the 1961-85 base period.

# OLYMPIC

**Mountain snowpack\*** (inches)



\*Based on selected stations

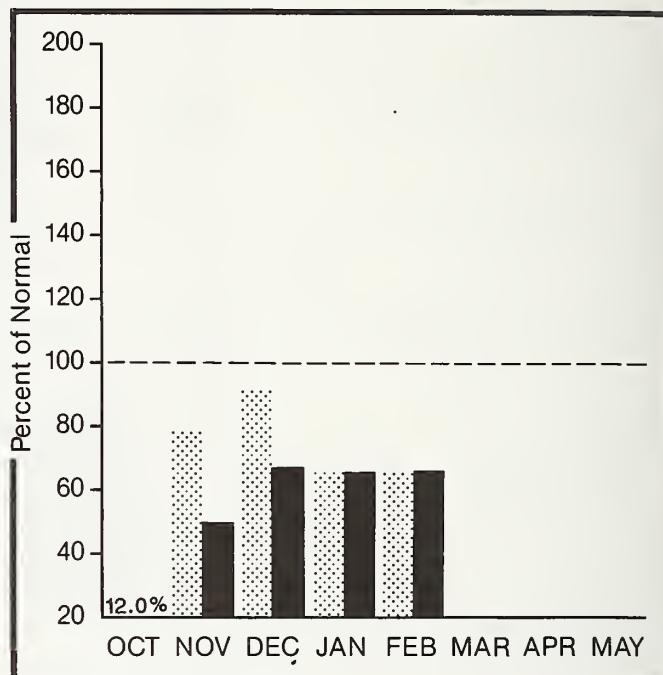
Maximum      [Shaded Box]

Average      [Dashed Line]

Minimum      [Shaded Box]

Current      [Solid Line with dots]

**Precipitation\*** (percent of normal)



\*Based on selected stations

Monthly precipitation      [Shaded Box]

Year to date precipitation      [Solid Box]

## OLYMPIC PENINSULA RIVER BASINS

### WATER SUPPLY OUTLOOK:

The Olympic basin remains the only area in the state with above average snow cover. Cox Valley snow course in the Morse Creek drainage had a 81 inch snow depth with 33.2 inches of water content for 101% of average. The water year to date precipitation is 65% of normal. February precipitation was 64% of average. March 1 forecasts of runoff for streams in the basin are for 72% of average on the Dungeness River and 78% on the Elwha River. Temperatures averaged 3 degrees above normal for February.

For more information contact your local Soil Conservation Service office.

**OLYMPIC PENINSULA RIVER BASINS**

**STREAMFLOW FORECASTS**

FORECAST POINT	FORECAST PERIOD	25 YR. AVG.	MOST (1000AF)	MOST (1000AF) (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
DUNGENESS RIVER nr Sequim	APR-SEP	159.0	115.0	72	145.0	91	85.0	53
	APR-JUL	129.0	93.0	72	115.0	89	70.0	54
	APR-JUN	97.0	73.0	75	90.0	93	55.0	57
ELWHA RIVER nr Port Angeles	APR-SEP	553.0	430.0	78	530.0	96	330.0	60
	APR-JUL	454.0	365.0	80	450.0	99	280.0	62

RESERVOIR STORAGE (1000AF) | WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
	THIS YEAR	LAST YEAR	AVG.				
				Dungeness River	1	102	84
				Morse Creek	1	104	101
				Elwha River	1	106	93

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

DATA CURRENT AS OF: 3/8/88 7:44:17

BASIN SUMMARY OF  
SNOW COURSE DATA  
MARCH 1988

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85
PENO DREILLE RIVER							SOUILCHUCK CREEK						
BENTON MEADOW	2370	2/26/88	12	4.0	2.8	6.0	BEENIVE SPRINGS	4400	2/24/88	17	5.7	6.5	7.8
BENTON SPRING	4920	2/26/88	34	10.4	13.3	17.2	STEMHILT CREEK						
BOYER MOUNTAIN	5250	2/29/88	45	14.5	16.4	22.3	STEMHILT SLOPE	5000	2/24/88	30	10.1	9.7	13.1
BUNCHGRASS MEADOWS	5000	2/29/88	52	17.6	17.0	26.1	UPPER WHEELER	4400	2/24/88	15	5.1	8.3	9.6
CHEWALAH	4930	2/24/88	30	9.6	12.2	13.9	YAKIMA RIVER						
HEART LAKE TRAIL	4800	2/28/88	46	15.2	13.7	19.5	AHTANUM R.S.	3100	2/22/88	16	5.6	7.0	6.9
HOOOOO BASIN	6050	2/28/88	89	33.0	31.8	43.9	EIG BOULDER CREEK	3200	2/23/88	44	15.2	15.9	18.1
HOOOOO CREEK	5900	2/28/88	80	28.9	27.4	40.7	BLENETT PASS #2	4270	2/26/88	33	11.3	12.9	14.4
LOOKOUT	5140	2/25/88	61	18.4	20.5	29.5	BLENETT PASS#2 PILLOW	4270	3/01/88	--	14.25	15.9	22.2
NELSON CAN.	3100	2/25/88	36	10.3	11.5	14.3	BUMPING LAKE	3450	2/25/88	28	10.7	12.5	17.2
SCHWEITZER BOWL	4800	2/25/88	50	18.3	18.5	27.2	BUMPING LAKE (NEW)	3400	2/25/88	36	12.2	14.1	18.1
SCHWEITZER RIDGE	6200	2/25/88	76	28.5	34.7	40.1	CAYUSE PASS	5300	2/24/88	114	44.2	56.7	67.0
COLVILLE RIVER							COLOCKUM PASS	5370	2/26/88	32	10.7	11.0	14.7
BAIRO	3220	2/25/88	23	5.5	6.6	6.9	CORRAL PASS PILLOW	6000	3/01/88	--	26.35	32.1	32.1
CHEWALAH	4930	2/24/88	30	9.6	12.2	13.9	FISH LAKE PILLOW	3370	3/01/88	--	26.45	25.3	32.8
TOGO	3370	2/25/88	22	6.4	6.5	9.6	GREEN LAKE	6000	2/22/88	66	27.6	22.6	29.7
KETTLE RIVER							GREEN LAKE PILLOW	6000	3/01/88	--	17.95	17.3	18.1
BARNES CREEK CAN.	5300	2/23/88	52	15.3	10.2	17.2	ZOBII IS NOT ON FILE						
BIG WHITE MTN CAN.	5510	2/27/88	40	13.2	12.2	16.3	GROUSE CAMP PILLOW	5380	3/01/88	--	11.45	18.4	16.6
BUTTE CREEK	4070	2/26/88	23	5.6	5.8	8.6	LAKE CLE ELUM	2200	2/24/88	7	2.7	5.0	8.1
CARMI CAN.	4100	2/27/88	14	3.3	4.3	6.1	OLALLIE MEADOWS	3960	2/26/88	64	27.3	26.9	39.3
FARRON CAN.	4000	2/29/88	25	7.0	8.8	12.4	STAMPEDE PASS PILLOW	3860	3/01/88	--	35.05	37.7	47.7
GOAT CREEK	3600	2/26/88	16	4.4	5.2	6.6	SASSE RIDGE PILLOW	4200	3/01/88	--	25.25	25.9	30.7
MONASHEE PASS CAN.	4500	2/23/88	37	10.5	6.2	12.2	TUNNEL AVENUE	2450	2/22/88	34	12.1	15.7	19.8
SUMMIT G.S.	4600	2/26/88	23	5.4	6.5	7.3	WHITE PASS E.S.	4500	2/26/88	45	15.3	13.8	21.5
TRAPPING CK LOH CAN.	3050	2/27/88	14	3.8	3.9	5.1	WHITE PASS ES PILLOW	4500	3/01/88	--	15.85	16.1	22.0
OHAK LAKE, THIN LAKES							AHTANUM CREEK						
MOUNT TOLMAN	2000	2/17/88	7	2.6	2.4	--	AHTANUM R.S.	3100	2/22/88	16	5.6	7.0	6.9
TWIN LAKES	2700	2/18/88	19	5.6	6.1	--	GREEN LAKE PILLOW	6000	3/01/88	--	17.95	17.3	18.1
SPOKANE RIVER							HILL CREEK						
ABOVE BURKE	4100	2/25/88	40	12.4	10.4	19.0	HIGH RIDGE PILLOW	4980	3/01/88	--	14.35	19.0	26.1
FOURTH OF JULY SUM	3200	2/25/88	20	6.2	6.2	8.2	LEWIS AND COWLITZ RIVERS						
LOOKOUT	5140	2/25/88	61	18.4	20.5	29.5	CAYUSE PASS	5300	2/24/88	114	44.2	56.7	67.0
LOST LAKE	6110	2/25/88	90	30.1	33.1	48.9	CDRRL PASS	6000	2/26/88	70	27.7	28.9	34.1
MOSQUITO RIDGE	5200	2/27/88	66	21.9	22.9	33.7	CORRAL PASS PILLOW	6000	3/01/88	--	26.35	32.1	32.1
SHERWIN	3200	3/01/88	25	8.3	8.5	12.3	GREEN RIVER						
SUNSET	5540	3/01/88	70	17.0	19.4	28.1	COUGAR MTN. PILLOW	3200	3/01/88	--	12.35	18.4	24.7
NEWMAN LAKE							GRASS MOUNTAIN #2	2900	2/27/88	0	.0	7.8	14.6
QUARTZ PEAK PILLOW	4700	2/29/88	42	13.3	--	--	LESTER CREEK	3100	2/27/88	43	15.7	16.4	19.1
RACGED RIDGE	3330	2/27/88	34	12.0	5.6	--	LYNN LAKE	4000	2/27/88	36	13.7	15.3	22.8
OKANOCAN RIVER							SAWHILL RIDGE	4700	2/27/88	58	22.1	25.0	30.5
ABERCOEN LAKE CAN.	4300	2/29/88	15	3.3	3.5	5.9	STAMPEDE PASS PILLOW	3860	3/01/88	--	35.05	37.7	47.7
BLACKHALL PEAK CAN.	6370	2/25/88	65	23.6	26.1	29.6	TWIN CAMP	4100	2/27/88	50	20.5	34.3	21.1
BRENDA MINE CAN.	4800	2/26/88	22	8.2	11.4	11.9	WHITE RIVER						
BROOKMERE CAN.	3200	2/28/88	24	5.7	9.2	8.0	CAYUSE PASS	5300	2/24/88	114	44.2	56.7	67.0
ENDERERY CAN.	6200	2/25/88	81	31.0	31.4	32.6	CDRRL PASS	6000	2/26/88	70	27.7	28.9	34.1
ESPEDRN CK. LD. CAN.	4400	2/28/88	26	7.3	7.5	10.6	CORRAL PASS PILLOW	6000	3/01/88	--	26.35	32.1	32.1
ESPEDRN CK. MIO CAN.	4690	2/28/88	33	9.8	9.1	13.2	GREEN RIVER						
ESPEDRN CK. UP CAN.	5410	2/28/88	39	12.0	10.2	15.7	COUGAR MTN. PILLOW	3200	3/01/88	--	12.35	18.4	24.7
GREYBACK RES CAN.	5120	2/26/88	19	4.2	5.1	7.8	GRASS MOUNTAIN #2	2900	2/27/88	0	.0	7.8	14.6
HAMILTON HILL CAN.	4890	2/26/88	30	9.2	8.8	13.7	LESTER CREEK	3100	2/27/88	43	21.8	25.1	25.5
HARTS PASS PILLOW	6500	3/01/88	--	30.15	35.7	47.1	LYNN LAKE	4000	2/27/88	43	15.7	16.4	19.1
ISINTOK LAKE CAN.	5500	2/28/88	13	2.8	4.2	6.8	SAWHILL RIDGE	4700	2/27/88	58	22.1	25.0	30.5
LOST HORSE MTN CAN.	6300	2/29/88	17	3.6	5.6	8.1	SKYKDMH RIVER	3960	2/26/88	64	27.3	26.9	39.3
MCCULLOCH CAN.	4200	2/29/88	16	4.0	4.2	6.4	STEVENS PASS PILLOW	4070	3/01/88	--	37.15	40.4	37.8
MISSIZZULA MTN CAN.	5090	2/27/88	20	4.8	8.9	9.0	SKAGIT RIVER						
MISSION CREEK CAN.	5800	3/01/88	44	14.3	10.6	17.2	CEARO RIVER						
MONASHEE PASS CAN.	4500	2/23/88	37	10.5	6.2	12.2	CITY CABIN	2390	2/25/88	20	8.8	.0	13.1
MT. KODAU CAN.	5900	2/27/88	30	9.4	7.8	10.7	MT. GARDNER	3300	2/25/88	24	10.2	10.8	14.8
MUTTON CREEK #1	5700	2/25/88	35	12.6	9.6	11.9	SNOWQUALMIE RIVER						
RUSTY CREEK	4000	2/25/88	18	4.6	6.0	6.5	OLALLIE MEADOWS	3960	2/26/88	64	27.3	26.9	39.3
SALMON MEADOWS	4500	2/25/88	24	6.6	7.4	9.3	SKYKDMH RIVER						
SALMON MOHS PILLOW	4500	3/01/88	--	6.65	7.8	12.6	STEVENS PASS PILLOW	4070	3/01/88	--	37.15	40.4	37.8
SILVER STAR MTN CAN.	6000	2/28/88	56	20.6	20.8	24.3	SKAGIT RIVER						
SUMMERLAND RES CAN.	4200	2/27/88	17	4.4	7.0	8.7	EEAVER CREEK TRAIL	2200	2/26/88	24	8.7	12.1	13.0
SUNDAY SUMMIT CAN.	4300	2/25/88	14	3.3	5.6	5.5	EEAVER PASS	3680	2/25/88	61	21.8	25.1	25.5
TROUT CREEK CAN.	4690	2/28/88	16	4.1	5.4	6.7	EROWN TOP AM	6000	2/25/88	110	39.6	48.6	52.9
VASEUX CREEK CAN.	4600	2/29/88	14	3.5	3.1	5.9	DEVILS PARK	5900	2/25/88	76	24.6	31.0	37.8
WHITE ROCKS MTN CAN.	6000	2/25/88	45	14.9	16.7	20.0	FREEZEDUT CK. TRAIL	3500	2/26/88	28	8.5	11.3	11.3
METHOW RIVER							GRANITE CREEK	3500	2/25/88	41	12.8	14.2	16.3
HARTS PASS PILLOW	6500	3/01/88	--	30.15	35.7	47.1	HARTS PASS PILLOW	6500	3/01/88	--	30.15	35.7	47.1
MUTTON CREEK #1	5700	2/25/88	35	12.6	9.6	11.9	KLESILKWA CAN.	3710	2/23/88	29	9.4	9.2	11.4
RUSTY CREEK	4000	2/25/88	18	4.6	6.0	6.5	LIGHTNING LAKE CAN.	4000	2/25/88	28	7.7	10.9	11.9
SALMON MEADOWS	4500	2/25/88	24	6.6	7.4	9.3	LYMAN LAKE PILLOW	5900	3/01/88	--	46.15	48.2	55.9
SALMON MOHS PILLOW	4500	3/01/88	--	6.65	7.8	12.6	MEADONLS CABIN	1900	2/26/88	13	5.4	1.4	6.4
CHELAN LAKE BASIN							NEW HOZDMEEN LAKE	2800	2/25/88	26	8.0	7.8	11.7
CLOUDY PASS AM	6500	2/23/88	65	25.4	31.2	33.5	RAINY PASS PILLOW	4780	3/01/88	--	30.85	30.3	41.7
LYMAN LAKE PILLOW	5900	3/01/88	--	46.15	48.2	55.9	THUNDER BASIN	2400	2/26/88	52	17.6	18.0	18.9
LITTLE MOHS AM	5280	2/23/88	105	39.7	38.2	37.5	BAKER RIVER						
MIRROR LAKE PILLOW	5600	3/01/88	--	27.75	30.5	27.9	DUNGENESS RIVER						
PARK CK RIDGE PILLOW	4600	3/01/88	--	42.55	38.7	39.9	DEER PARK	5200	2/29/88	41	15.1	14.8	17.9
RAINY PASS PILLOW	4780	3/01/88	--	30.85	30.3	41.7	DRSE CREEK						
ENTIAT RIVER							COX VALLEY	4500	2/28/88	81	33.2	32.0	32.9
DRIEF	1600	2/25/88	18	6.2	6.7	6.9	ELWHA RIVER						
POPE RIDGE	3540	2/25/88	48	16.6	17.0	17.1	HURRICANE	4500	2/27/88	43	16.6	15.6	17.9
WENATCHEE RIVER													
BLENETT PASS #2	4270	2/26/88	33	11.3	12.9	14.4							
BLENETT PASS#2 PILLOW	4270	3/01/88	--	14.25	15.9	22.2							
LYMAN LAKE PILLOW	5900	3/01/88	--	46.15	48.2	55.9							
MISSION RIDGE	5000	2/24/88	41	9.6	11.1	--							
STEVENS PASS PILLOW	4070	3/01/88	--	37.15	40.4	37.8							
COLOCKUM CREEK TROUGH #2 PILLOW	5310	3/01/88	--	7.95	7.4	11.0							

## CONSERVE YOUR IRRIGATION WATER

Can irrigators use less water and get good yields? We think so. With energy costs on an upward spiral and water shortages likely, we offer these water saving ideas to irrigators.

Consider ditch lining or gated pipe. This will reduce the 10-90% loss which occurs in earth ditches.

Keep ditches clean and free from weeds, sediment or other debris, which can slow water velocity, affect delivery rate, and increase evaporation.

Make sure head gates, drop structures, and pipe inlets are operational. A washed out structure is water lost.

Inspect ditch banks for rodent damage. Rodent holes cause leakage or failures.

Make sure sprinkler nozzles are not worn or leaky. Check pipe connections and valves to prevent leaks.

Operate sprinklers at recommended pressure to effectively use available water.

Maintain your pump at peak efficiency to save energy.

### BETTER WATER MANAGEMENT

Better water management may require more labor. It may require changing a head of water in the middle of the night. But it will be worth it. You should:

Measure your water to determine how much is applied.

Consider alternate row irrigation for crops planted in furrows.

Plan short runs. Match stream size and velocity to soil intake rate and capacity.

Catch and reuse tail water where possible.

Under irrigate the lower end of the field to stretch your water.

When water is short, consider eliminating that last irrigation.

Soil Conservation Service personnel can:

Help plan and design new irrigation systems or evaluate existing ones. Provide technical assistance for land leveling, pipeline installation, and other practices.

### KNOW YOUR SOILS

Soil absorbs irrigation water at a given rate. This varies with each soil type. Some crops require more water than others. Check soil moisture by spade, probe, or moisture meter. Or use the "feel" method.

### WHEN IRRIGATION IS NEEDED SOIL WILL FEEL AND ACT THIS WAY

Soil Texture	A handful of soil will
Coarse	Tend to stick together slightly, but will not form a ball
Medium	Be crumbly, but will form a ball
Fine	be pliable, and will form a ball.

If you have a conservation plan on your farm, or if the soil is your area has been mapped, the Soil Conservation Service can crosscheck soil type and irrigation data and provide you with the water holding capacity of your soil for a given crop.

# Surviving a Water Shortage Takes Good Management

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What can be done to nurture trees, shrubs, lawns and gardens through a water-short year?

First, try to learn all you can about how much water will be available and what regulations might be put into effect.

Absorb all you can about relationships among soil, water and plants — especially your own.

Develop a plan for applying water based on supply, needs, alternatives and current conditions.

Observe and measure how your plan is working.

Those plant, water and soil relationships are crucial to success of your management plan.

Plants differ in how much water they need to survive or prosper — and this varies with climate and changing weather conditions.

Sprinklers and other devices for applying water vary in how fast they can deliver water.

And finally, soils differ in how fast they absorb moisture, how much they store and how long they retain it.

A rule of thumb says 1 inch of moisture will penetrate 12 inches deep in sandy soil; 7 inches in loam, and 4 to 5 inches in clay.

## *ALTERNATIVES*

Save water for plants that can't survive without it.

Reduce watering of other plants to subsistence level. (Lawns can do without water for a long time and green up again when moisture is available.)

Don't plant annuals when water shortage is imminent.

If a vegetable garden is important, many perennials can do without water better than annuals can.

Hold up on new landscaping or consider desert or native plants.

If you were planning to remove any lawn, trees or shrubs in the future; this would be the year to do the work before you start watering.

Change your lawn and garden watering system. Try automatic, drip or different sprinkler heads for better efficiency.

## *APPLY WATER EFFICIENTLY*

Water deep and less often. Shallow, frequent watering encourages shallow roots, more evaporation loss and reduces the moisture reservoir in the soil.

For best results check how long it takes to soak the entire root zone and how long this watering will last.

Don't apply water faster than soil can absorb.

Don't let water run off into street or driveway.

Water early in the day to reduce evaporation loss.

## *CONSERVE MOISTURE*

Mulch around trees and shrubs and between garden rows. This holds in moisture, discourages weeds which compete for moisture.

Aerate your lawn to permit better water penetration.

Set your lawn mower blade to leave 2 or more inches of grass after mowing.

Fertilize adequately. A sick looking lawn or garden many need more fertilizer, not more water. Apply fertilizer before regular watering.

If it rains, reduce watering time accordingly. Measure how much rain has fallen, adjust watering schedule and duration accordingly.

# The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

**Canada:**

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

**States:**

Washington State Department of Ecology  
Washington State Department of Natural Resources

**Federal:**

Department of the Army  
Corps of Engineers  
U.S. Department of Agriculture  
Forest Service  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service  
Bureau of Indian Affairs

**Local:**

City of Tacoma  
City of Seattle  
Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company  
Snohomish County P.U.D.  
**Colville Confederated Tribes**

**Private:**

Okanogan Irrigation District  
Wenatchee Heights Irrigation District  
Newman Lake Homeowners Association

Other organizations and individuals furnish valuable information for  
snow survey reports. Their cooperation is gratefully acknowledged.

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